



Effects of *Salmonella enterica* ser. Typhimurium LPS on spontaneous and acetylcholine-stimulated gut contractions ex vivo

Naughton, V., & Naughton, P. (2016). Effects of *Salmonella enterica* ser. Typhimurium LPS on spontaneous and acetylcholine-stimulated gut contractions ex vivo. In JC. AUGUSTIN et al (Ed.), *Proceedings of I3S Conference Salmonella and Salmonellosis 2016, Saint Malo FRANCE* (pp. 23-23). ISPAIA. <http://www.i3s2016.com>

[Link to publication record in Ulster University Research Portal](#)

Published in:

Proceedings of I3S Conference Salmonella and Salmonellosis 2016, Saint Malo FRANCE

Publication Status:

Published online: 06/06/2016

Document Version

Publisher's PDF, also known as Version of record

General rights

Copyright for the publications made accessible via Ulster University's Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The Research Portal is Ulster University's institutional repository that provides access to Ulster's research outputs. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact pure-support@ulster.ac.uk.

**Effects of *Salmonella enterica* ser. Typhimurium LPS
on spontaneous and acetylcholine-stimulated gut contractions *ex vivo***

NAUGHTON Violetta and NAUGHTON Patrick.

School of Biomedical Sciences, University of Ulster, Coleraine, Northern Ireland.

This study evaluated the effects of *S. Typhimurium* lipopolysaccharides (LPS) on spontaneous and acetylcholine-stimulated contractions of isolated intestinal muscle strips. The GI tracts of 16 adult mice were harvested at sacrifice; two muscles strips (5mm x 5mm each) were excised from duodenum, jejunum and ileum and were randomly allocated to LPS group (SL 1181, Sigma-Aldrich; 0.5 µg/1 ml of Tyrode solution) and a control group (Tyrode solution alone). The strips were equilibrated for 60 min in gassed (95%O₂/5%CO₂) Tyrode (with or without LPS). Following equilibration, the spontaneous contractile activity was recorded for 60 minutes, subsequent to which a cumulative dose response (DR) to acetylcholine (ACh, 1x10⁻⁸ to 4x10⁻⁶ M) was administered for stimulated activity. At the completion of DR, Tyrode solution was changed and the muscle strips were recorded for an additional 60 min (observing the same group treatment as prior to DR). The recordings were undertaken with PowerLab with MLT0202 transducers, ML221 amplifiers (all by ADInstrument, UK). The effects of LPS were evaluated with repeated measures ANOVA with time (prior vs. after DR), group (LPS vs. control) and animal as independent variables. The effects of LPS on maximum amplitude of ACh-stimulated contractions were evaluated with univariate ANOVA with group (LPS vs. control) and animal as independent variables. The frequencies of spontaneous duodenal, jejunal and ileal contractions were not affected by the tested variables. The amplitude of duodenal spontaneous contractions was increased by LPS (1.07 vs. 1.35 g/g wet tissue for control and LPS group, respectively; *P* = 0.027). The responses to ACh of both duodenal and jejunal strips treated with LPS were greater (*P* = 0.011 and *P* = 0.046) than the controls. In conclusion, results suggest that a residual luminal presence of LPS from *S. Typhimurium* may affect motility of the small intestine.